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**SUBJECT** Appeal Brief (10/015,223)

**Number of Pages** 45

**Date** 10/26/2005

## MESSAGE

This fax communication contains:

1. one copy of a Fax Transmittal Form;
2. two copies of a Fee Transmittal Letter, including fee; and
3. three copies of the Appeal Brief.

Volel

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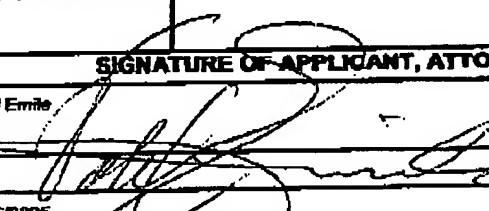
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<b>TRANSMITTAL FORM</b> <i>(to be used for all correspondence after initial filing)</i>		Application Number 10/015,223
		Filing Date 12/17/2001
		First Named Inventor McNamee et al.
		Art Unit 2168
		Examiner Name Pierre M. Vital
Total Number of Pages in This Submission 1		Attorney Docket Number AUSS20010552US1

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavit/Declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Request to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation <input type="checkbox"/> Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number or CD(s)	<input type="checkbox"/> After Allowance communication to Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Other Enclosure(s) (please identify below):
<small>Remarks</small> Appeal Brief.		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Name or Individual name Volel Emile
Signature 
Date 10/26/2005

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

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Signature 
Date 10/26/2005

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Appl. No. 10/015,223  
Appeal Brief dated 10/26/2005  
Reply to Office Action of 06/07/2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of:  
Gerald Francis McBrearty :  
Serial No: 10/015,223 : Before the Examiner:  
Filed: 12/17/2001 : Pierre M. Vital  
Title: APPARATUS AND METHOD : Group Art Unit: 2188  
OF CREATING A MIRRORING MAP : Confirmation No.: 6252  
FOR USE WITH DIFFERENT PIECES :  
OF DATA :  
:

TRANSMITTAL OF APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192(a)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Attached is Appellant's Brief, in triplicate, from a decision of the Examiner dated 06/07/2005, finally rejecting the claims in the Application.

The item(s) marked below are appropriate:

1.  A petition and fee for extension of term for reply to the final rejection is attached.
2.  Appeal fee  
 other than a small entity. Fee: \$500.00
3.  Payment  
 Please charge Deposit Account 09-0447 the sum of \$500.00. A duplicate of this notice is attached.

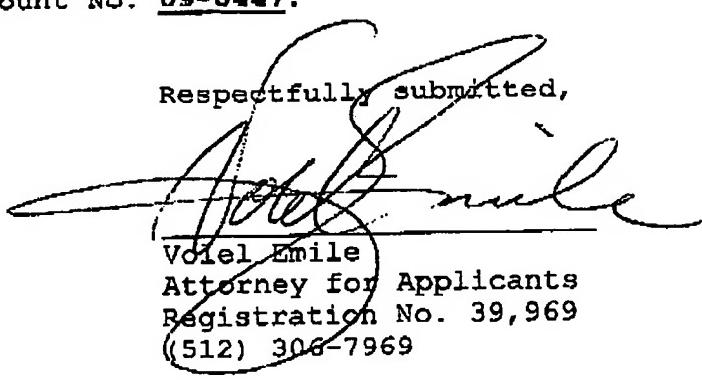
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Appeal Brief dated 10/26/2005  
Reply to Office Action of 06/07/2005

The Commissioner is hereby authorized to charge any additional fee, which may be required or credit any overpayment to Deposit Account No. 09-0447.

Respectfully submitted,

  
Voile Emile  
Attorney for Applicants  
Registration No. 39,969  
(512) 306-7969

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OF CREATING A MIRRORING MAP : Confirmation No.: 6252  
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OF DATA :  
:

APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal to a final rejection dated June 07, 2005 of claims 1 - 20 of Application Serial Number 10/015,223 filed on December 17, 2001. This Appeal Brief is submitted pursuant to a Notice of Appeal filed on August 29, 2005 in accordance with 37 C.F.R. 1.192.

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Reply to Office Action of 06/07/2005

BRIEF FOR APPLICANTS - APPELLANTS

(1)

Real Party in Interest

The real party in interest is International Business Machines Corporation (IBM), the assignee.

(2)

Related Appeals and Interferences

There are no other appeals or interferences known to appellants, appellants' representative or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3)

Status of Claims

Claims 1 - 20 have been finally rejected in an Office Action dated June 07, 2005.

(4)

Status of Amendment

All amendments have been entered.

(5)

Summary of the Invention

The present invention allows existing mirroring maps to be used whenever applicable rather than requiring that a new mirroring map be defined for each piece of data being mirrored. In accordance with the teachings of the invention, when a mirroring map is created, it is given a

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name (see page 14, lines 29 and 30). The name is used to associate different pieces of data with the mirroring map (see page 14, line 30 to page 15, line 3). That is, different pieces of data may use an existing map when they are associated with the name of the mirroring map.

(6)

Issues

Whether Claims 1 - 20 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Balsan et al.

(7)

Grouping of Claims

The rejected claims stand or fall together.

(8)

Argument

In considering a Section 103 rejection, the subject matter of the claim "as a whole" must be considered and analyzed. In the analysis, it is necessary that the scope and contents of the prior art and differences between the art and the claimed invention be determined. *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

According to Taylor et al., during a data migration operation (i.e., when data is moved from a first storage device to a second storage device), it is often necessary to block access to the data. After the migration has completed, re-configuration at a user system must be executed to make the data available to the user from the

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second storage device. The blocking of access to the data during the data migration is a particularly costly action for large data sets having many users. Both the amount of time required to move a copy of the data to the second storage device, and the number of people inconvenienced can be very large. As a solution, Taylor et al. sought to provide a method of transferring data from a first storage device to a second storage device without blocking access to the data.

In accordance with the purported teachings of Taylor et al. an intermediate device is used. The intermediate device comprises three communication interfaces. A first interface is used to communicate with the first storage device (e.g., the storage device in which the data is originally stored). A second interface is used to communicate with the second storage device (e.g., the storage device in which the data is to be transferred), and a third interface is used to communicate with client systems.

When a client system requests access to a certain piece of data, the request is routed to the intermediate device. The intermediate first determines whether the request is a "read" or a "write". If the request is a "write" (as when a data is being modified) the data that is to be written will be sent to both the first and second storage devices if the data to be modified has already been transferred to the second storage device. If on the other hand, the request is a "read", the read request may be sent to either the first or the second storage device if the

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device has already been transferred to the second storage device.

However, Taylor et al. do not teach, show or so much as suggest the steps of naming a *mirroring map* and of allowing different pieces of data to be used with the *mirroring map* when the name of the *mirroring map* is associated with the different pieces of data as claimed.

Belsan et al. purport to teach a data file storage management system for snapshot copy operations. According to Belsan et al., a file storage management system for snapshot copy operations is used. The file storage management system is implemented in a dynamically mapped virtual data storage subsystem to maintain data file copy integrity in snapshot copy operations. The data storage subsystem is connected to at least one processor and functions to store data files for the processor in the backend data storage devices that are part of the data storage subsystem. The processor assigns a virtual track address to a data file which is transmitted to the data storage subsystem for storage in an allocated physical storage location in the backend data storage devices. The assignment of a physical storage location on the backend data storage devices is effected by a controller contained within the data storage subsystem, which defines the correspondence between the processor assigned virtual track address and the logical address of the stored data file. A mapping table translates the virtual track address into a logical address which identifies the location of the data file on a physical disk drive. The location of the data file changes as the data storage subsystem free space

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collection process moves the data file to create free space into which new data can be written. It is therefore insufficient to store the translation from a virtual address to a logical address as a means of preserving a record of the mapping table updates, since the free space collection process changes the physical location of the data file but does not update these translations.

Consequently, Belsan et al. purport to provide the data files stored on the disk drives with information that is independent of the logical address at which the data file presently being copied is stored. This enables the disk stored information to remain valid even though the physical location of the data file may change over time. This is accomplished by the use of a two level mapping architecture. The first level of mapping tables maps a virtual address to an immutable name which identifies a unit of data, such as a virtual track. The second level of mapping tables maps the immutable name to a given logical address. The snapshot copy operation operates on the first level of the mapping table to create multiple copies of the virtual track, thereby eliminating the need to associate with each virtual track address a mapping table entry which contains a logical address.

But note that it is a logical address that is given a name and not a logical volume as in the present case.

In any case, just like in the case of Taylor et al., Belsan et al. do not teach, show or so much as suggest the steps of *naming a mirroring map and of allowing different pieces of data to be used with the mirroring map when the*

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*name of the mirroring map is associated with the different pieces of data as claimed.*

Since the references, either alone or in combination, teach, show or suggest the claimed invention, Applicants submit that the claims in the Application are allowable. Hence, Applicants respectfully request allowance and passage to issue of the claims in the application.

Respectfully submitted,

By:

Volel Emile  
Attorney for Applicants  
Registration No. 39,969  
(512) 306-7969

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Appl. No. 10/015,223  
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## APPENDIX

1. (Previously presented) A method of defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the method comprising the steps of:
  - creating the mirroring map;
  - naming the mirroring map; and
  - allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
2. (Previously presented) The method of Claim 1 wherein the step of allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes the step of associating a volume group in which the different pieces of data are to be stored with the mirroring map.
3. (Original) The method of Claim 2 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.

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4. (Original) The method of Claim 3 wherein a mirroring map may be created for facilitating striping a piece of data.
5. (Original) The method of Claim 4 wherein a partition may be specified when storing data in a mirroring map.
6. (Previously presented) A computer program product on a computer readable medium for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the computer program product comprising:
  - code means for creating the mirroring map;
  - code means for naming the mirroring map; and
  - code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
7. (Previously presented) The computer program product of Claim 6 wherein the code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes code means for

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associating a volume group in which the different pieces of data are to be stored with the mirroring map.

8. (Original) The computer program product of Claim 7 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.

9. (Original) The computer program product of Claim 8 wherein a mirroring map may be created for facilitating striping a piece of data.

10. (Original) The computer program product of Claim 9 wherein a partition may be specified when storing data in a mirroring map.

11. (Previously presented) An apparatus for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the apparatus comprising:

means for creating the mirroring map;

means for naming the mirroring map; and

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means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.

12. (Previously presented) The apparatus of Claim 11 wherein the means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes means for associating a volume group in which the different pieces of data are to be stored with the mirroring map.
13. (Original) The apparatus of Claim 12 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.
14. (Original) The apparatus of Claim 13 wherein a mirroring map may be created for facilitating striping a piece of data.
15. (Original) The apparatus of Claim 14 wherein a partition may be specified when storing data in a mirroring map.
16. (Previously presented) A computer system for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems

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to use to store one or more copies of a piece of data,  
the computer system comprising:

at least a memory device for storing code data; and

at least a processor for processing said code data for  
creating the mirroring map, naming the mirroring map,  
and allowing different pieces of data to be used with  
the mirroring map when the name of the mirroring map  
is associated with the different pieces of data.

17. (Previously presented) The computer system of Claim 16  
wherein processing the code data to allow different  
pieces of data to be used with the mirroring map when  
the name of the mirroring map is associated with the  
different pieces of data includes processing the code  
data to associate a volume group in which the  
different pieces of data are to be stored with the  
mirroring map.

18. (Original) The computer system of Claim 17 wherein  
existing mirroring maps may be displayed when  
selecting a mirroring map to associate with a piece of  
data.

19. (Original) The computer system of Claim 18 wherein a  
mirroring map may be created for facilitating striping  
a piece of data.

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20. (Original) The computer system of Claim 19 wherein a partition may be specified when storing data in a mirroring map.

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APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192

Commissioner for Patents  
P.O. Box 1450  
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BRIEF FOR APPLICANTS - APPELLANTS

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Real Party in Interest

The real party in interest is International Business Machines Corporation (IBM), the assignee.

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Related Appeals and Interferences

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(6)

Issues

Whether Claims 1 - 20 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Balsan et al.

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Grouping of Claims

The rejected claims stand or fall together.

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Argument

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According to Taylor et al., during a data migration operation (i.e., when data is moved from a first storage device to a second storage device), it is often necessary to block access to the data. After the migration has completed, re-configuration at a user system must be executed to make the data available to the user from the

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In accordance with the purported teachings of Taylor et al. an intermediate device is used. The intermediate device comprises three communication interfaces. A first interface is used to communicate with the first storage device (e.g., the storage device in which the data is originally stored). A second interface is used to communicate with the second storage device (e.g., the storage device in which the data is to be transferred), and a third interface is used to communicate with client systems.

When a client system requests access to a certain piece of data, the request is routed to the intermediate device. The intermediate first determines whether the request is a "read" or a "write". If the request is a "write" (as when a data is being modified) the data that is to be written will be sent to both the first and second storage devices if the data to be modified has already been transferred to the second storage device. If on the other hand, the request is a "read", the read request may be sent to either the first or the second storage device if the

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Belsan et al. purport to teach a data file storage management system for snapshot copy operations. According to Belsan et al., a file storage management system for snapshot copy operations is used. The file storage management system is implemented in a dynamically mapped virtual data storage subsystem to maintain data file copy integrity in snapshot copy operations. The data storage subsystem is connected to at least one processor and functions to store data files for the processor in the backend data storage devices that are part of the data storage subsystem. The processor assigns a virtual track address to a data file which is transmitted to the data storage subsystem for storage in an allocated physical storage location in the backend data storage devices. The assignment of a physical storage location on the backend data storage devices is effected by a controller contained within the data storage subsystem, which defines the correspondence between the processor assigned virtual track address and the logical address of the stored data file. A mapping table translates the virtual track address into a logical address which identifies the location of the data file on a physical disk drive. The location of the data file changes as the data storage subsystem free space

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By:

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Attorney for Applicants  
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## APPENDIX

1. (Previously presented) A method of defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the method comprising the steps of:
  - creating the mirroring map;
  - naming the mirroring map; and
  - allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
2. (Previously presented) The method of Claim 1 wherein the step of allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes the step of associating a volume group in which the different pieces of data are to be stored with the mirroring map.
3. (Original) The method of Claim 2 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.

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4. (Original) The method of Claim 3 wherein a mirroring map may be created for facilitating striping a piece of data.
5. (Original) The method of Claim 4 wherein a partition may be specified when storing data in a mirroring map.
6. (Previously presented) A computer program product on a computer readable medium for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the computer program product comprising:
  - code means for creating the mirroring map;
  - code means for naming the mirroring map; and
  - code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
7. (Previously presented) The computer program product of Claim 6 wherein the code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes code means for

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associating a volume group in which the different pieces of data are to be stored with the mirroring map.

8. (Original) The computer program product of Claim 7 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.

9. (Original) The computer program product of Claim 8 wherein a mirroring map may be created for facilitating striping a piece of data.

10. (Original) The computer program product of Claim 9 wherein a partition may be specified when storing data in a mirroring map.

11. (Previously presented) An apparatus for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the apparatus comprising:

means for creating the mirroring map;

means for naming the mirroring map; and

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means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.

12. (Previously presented) The apparatus of Claim 11 wherein the means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes means for associating a volume group in which the different pieces of data are to be stored with the mirroring map.
13. (Original) The apparatus of Claim 12 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.
14. (Original) The apparatus of Claim 13 wherein a mirroring map may be created for facilitating striping a piece of data.
15. (Original) The apparatus of Claim 14 wherein a partition may be specified when storing data in a mirroring map.
16. (Previously presented) A computer system for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems

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to use to store one or more copies of a piece of data,  
the computer system comprising:

at least a memory device for storing code data; and

at least a processor for processing said code data for  
creating the mirroring map, naming the mirroring map,  
and allowing different pieces of data to be used with  
the mirroring map when the name of the mirroring map  
is associated with the different pieces of data.

17. (Previously presented) The computer system of Claim 16  
wherein processing the code data to allow different  
pieces of data to be used with the mirroring map when  
the name of the mirroring map is associated with the  
different pieces of data includes processing the code  
data to associate a volume group in which the  
different pieces of data are to be stored with the  
mirroring map.
18. (Original) The computer system of Claim 17 wherein  
existing mirroring maps may be displayed when  
selecting a mirroring map to associate with a piece of  
data.
19. (Original) The computer system of Claim 18 wherein a  
mirroring map may be created for facilitating striping  
a piece of data.

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20. (Original) The computer system of Claim 19 wherein a partition may be specified when storing data in a mirroring map.

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of:  
Gerald Francis McBrearty :  
Serial No: 10/015,223 : Before the Examiner:  
Filed: 12/17/2001 : Pierre M. Vital  
Title: APPARATUS AND METHOD : Group Art Unit: 2188  
OF CREATING A MIRRORING MAP : Confirmation No.: 6252  
FOR USE WITH DIFFERENT PIECES :  
OF DATA :

APPELLANTS' BRIEF UNDER 37 C.F.R. 1.192

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an appeal to a final rejection dated June 07, 2005 of claims 1 - 20 of Application Serial Number 10/015,223 filed on December 17, 2001. This Appeal Brief is submitted pursuant to a Notice of Appeal filed on August 29, 2005 in accordance with 37 C.F.R. 1.192.

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BRIEF FOR APPLICANTS - APPELLANTS

(1)

Real Party in Interest

The real party in interest is International Business Machines Corporation (IBM), the assignee.

(2)

Related Appeals and Interferences

There are no other appeals or interferences known to appellants, appellants' representative or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3)

Status of Claims

Claims 1 - 20 have been finally rejected in an Office Action dated June 07, 2005.

(4)

Status of Amendment

All amendments have been entered.

(5)

Summary of the Invention

The present invention allows existing mirroring maps to be used whenever applicable rather than requiring that a new mirroring map be defined for each piece of data being mirrored. In accordance with the teachings of the invention, when a mirroring map is created, it is given a

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name (see page 14, lines 29 and 30). The name is used to associate different pieces of data with the mirroring map (see page 14, line 30 to page 15, line 3). That is, different pieces of data may use an existing map when they are associated with the name of the mirroring map.

(6)

Issues

Whether Claims 1 - 20 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Taylor et al. in view of Balsan et al.

(7)

Grouping of Claims

The rejected claims stand or fall together.

(8)

Argument

In considering a Section 103 rejection, the subject matter of the claim "as a whole" must be considered and analyzed. In the analysis, it is necessary that the scope and contents of the prior art and differences between the art and the claimed invention be determined. *Graham v. John Deere Co.*, 383 U.S. 1 (1966).

According to Taylor et al., during a data migration operation (i.e., when data is moved from a first storage device to a second storage device), it is often necessary to block access to the data. After the migration has completed, re-configuration at a user system must be executed to make the data available to the user from the

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second storage device. The blocking of access to the data during the data migration is a particularly costly action for large data sets having many users. Both the amount of time required to move a copy of the data to the second storage device, and the number of people inconvenienced can be very large. As a solution, Taylor et al. sought to provide a method of transferring data from a first storage device to a second storage device without blocking access to the data.

In accordance with the purported teachings of Taylor et al. an intermediate device is used. The intermediate device comprises three communication interfaces. A first interface is used to communicate with the first storage device (e.g., the storage device in which the data is originally stored). A second interface is used to communicate with the second storage device (e.g., the storage device in which the data is to be transferred), and a third interface is used to communicate with client systems.

When a client system requests access to a certain piece of data, the request is routed to the intermediate device. The intermediate first determines whether the request is a "read" or a "write". If the request is a "write" (as when a data is being modified) the data that is to be written will be sent to both the first and second storage devices if the data to be modified has already been transferred to the second storage device. If on the other hand, the request is a "read", the read request may be sent to either the first or the second storage device if the

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device has already been transferred to the second storage device.

However, Taylor et al. do not teach, show or so much as suggest the steps of *naming a mirroring map and of allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data* as claimed.

Belsan et al. purport to teach a data file storage management system for snapshot copy operations. According to Belsan et al., a file storage management system for snapshot copy operations is used. The file storage management system is implemented in a dynamically mapped virtual data storage subsystem to maintain data file copy integrity in snapshot copy operations. The data storage subsystem is connected to at least one processor and functions to store data files for the processor in the backend data storage devices that are part of the data storage subsystem. The processor assigns a virtual track address to a data file which is transmitted to the data storage subsystem for storage in an allocated physical storage location in the backend data storage devices. The assignment of a physical storage location on the backend data storage devices is effected by a controller contained within the data storage subsystem, which defines the correspondence between the processor assigned virtual track address and the logical address of the stored data file. A mapping table translates the virtual track address into a logical address which identifies the location of the data file on a physical disk drive. The location of the data file changes as the data storage subsystem free space

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collection process moves the data file to create free space into which new data can be written. It is therefore insufficient to store the translation from a virtual address to a logical address as a means of preserving a record of the mapping table updates, since the free space collection process changes the physical location of the data file but does not update these translations.

Consequently, Belsan et al. purport to provide the data files stored on the disk drives with information that is independent of the logical address at which the data file presently being copied is stored. This enables the disk stored information to remain valid even though the physical location of the data file may change over time. This is accomplished by the use of a two level mapping architecture. The first level of mapping tables maps a virtual address to an immutable name which identifies a unit of data, such as a virtual track. The second level of mapping tables maps the immutable name to a given logical address. The snapshot copy operation operates on the first level of the mapping table to create multiple copies of the virtual track, thereby eliminating the need to associate with each virtual track address a mapping table entry which contains a logical address.

But note that it is a logical address that is given a name and not a logical volume as in the present case.

In any case, just like in the case of Taylor et al., Belsan et al. do not teach, show or so much as suggest the steps of *naming a mirroring map and of allowing different pieces of data to be used with the mirroring map when the*

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*name of the mirroring map is associated with the different pieces of data as claimed.*

Since the references, either alone or in combination, teach, show or suggest the claimed invention, Applicants submit that the claims in the Application are allowable. Hence, Applicants respectfully request allowance and passage to issue of the claims in the application.

Respectfully submitted,

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## APPENDIX

1. (Previously presented) A method of defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the method comprising the steps of:
  - creating the mirroring map;
  - naming the mirroring map; and
  - allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
2. (Previously presented) The method of Claim 1 wherein the step of allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes the step of associating a volume group in which the different pieces of data are to be stored with the mirroring map.
3. (Original) The method of Claim 2 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.

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4. (Original) The method of Claim 3 wherein a mirroring map may be created for facilitating striping a piece of data.
5. (Original) The method of Claim 4 wherein a partition may be specified when storing data in a mirroring map.
6. (Previously presented) A computer program product on a computer readable medium for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the computer program product comprising:
  - code means for creating the mirroring map;
  - code means for naming the mirroring map; and
  - code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.
7. (Previously presented) The computer program product of Claim 6 wherein the code means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes code means for

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associating a volume group in which the different pieces of data are to be stored with the mirroring map.

8. (Original) The computer program product of Claim 7 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.
9. (Original) The computer program product of Claim 8 wherein a mirroring map may be created for facilitating striping a piece of data.
10. (Original) The computer program product of Claim 9 wherein a partition may be specified when storing data in a mirroring map.
11. (Previously presented) An apparatus for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems to use to store one or more copies of a piece of data, the apparatus comprising:

means for creating the mirroring map;

means for naming the mirroring map; and

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means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data.

12. (Previously presented) The apparatus of Claim 11 wherein the means for allowing different pieces of data to be used with the mirroring map when the name of the mirroring map is associated with the different pieces of data includes means for associating a volume group in which the different pieces of data are to be stored with the mirroring map.
13. (Original) The apparatus of Claim 12 wherein existing mirroring maps may be displayed when selecting a mirroring map to associate with a piece of data.
14. (Original) The apparatus of Claim 13 wherein a mirroring map may be created for facilitating striping a piece of data.
15. (Original) The apparatus of Claim 14 wherein a partition may be specified when storing data in a mirroring map.
16. (Previously presented) A computer system for defining a mirroring map for use with different pieces of data, the mirroring map being an identification of one or more physical storage systems and one or more physical partitions in the one or more physical storage systems

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to use to store one or more copies of a piece of data,  
the computer system comprising:

at least a memory device for storing code data; and

at least a processor for processing said code data for  
creating the mirroring map, naming the mirroring map,  
and allowing different pieces of data to be used with  
the mirroring map when the name of the mirroring map  
is associated with the different pieces of data.

17. (Previously presented) The computer system of Claim 16  
wherein processing the code data to allow different  
pieces of data to be used with the mirroring map when  
the name of the mirroring map is associated with the  
different pieces of data includes processing the code  
data to associate a volume group in which the  
different pieces of data are to be stored with the  
mirroring map.
18. (Original) The computer system of Claim 17 wherein  
existing mirroring maps may be displayed when  
selecting a mirroring map to associate with a piece of  
data.
19. (Original) The computer system of Claim 18 wherein a  
mirroring map may be created for facilitating striping  
a piece of data.

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20. (Original) The computer system of Claim 19 wherein a partition may be specified when storing data in a mirroring map.

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